

REVELATION
POTTERY KILNS
AND
HIGH HEAT
FURNACES



REVELATION
POTTERY KILNS



H. J. Caulkins

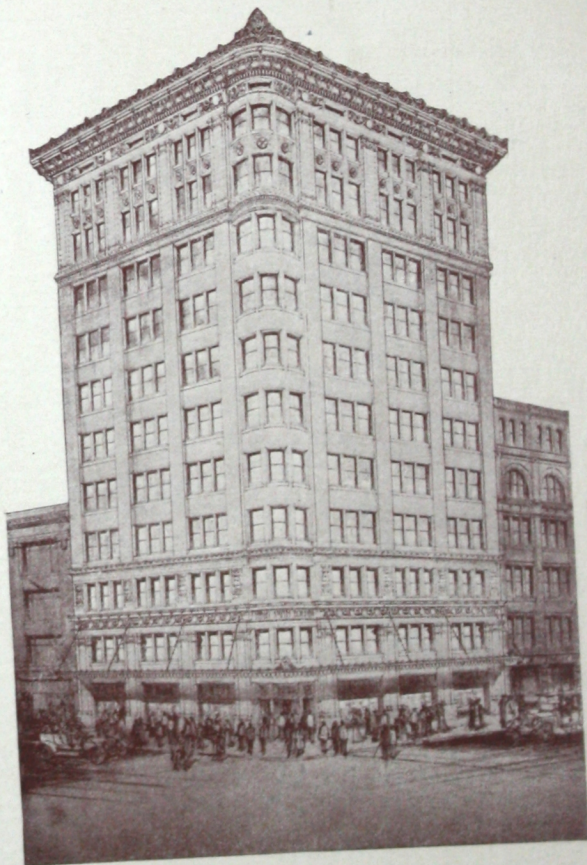
M. C. Perry

H. J. Caulkins & Company

MANUFACTURERS OF
CHINA, GLASS,
POTTERY KILNS
AND OTHER
HIGH-HEAT
FURNACES
STATE AND
GRISWOLD
DETROIT
MICHIGAN

State & Griswold

Detroit Michigan



H. J. CAULKINS & CO.
State and Griswold Detroit, Michigan

The Revelation Kilns for Pottery

These kilns embrace entirely new features, both in construction and method of firing. They are built throughout of the finest grade of fire-brick, which has been shrunk by the highest heat possible. This fire-brick is backed by a heavy wall of asbestos, reducing external radiation to a minimum. A tubular lining, through which the flames pass, gives two-thirds more interior radiating surface than a flat wall. No saggars are needed, as the flames do not come in contact with the ware.

Kerosene oil, which is obtainable in all parts of the world, is used as a fuel, and by our method, produces a greater, quicker and purer combustion than any other fuel, no coal to be shoveled and no ashes to be removed. No blast is required. Connection with a natural draught, in a strongly built chimney is all that is necessary for perfect operation. The same kiln may be used either for Biscuit or Glaze, and the ware, as well as test cones, may be watched continually through peep holes, or tests may be withdrawn.

**Tubular
Construction**

**Practical
Clean Fuel**

1DY 91-B1988 CORM 10

There are sufficient burners to make the fire come up as quickly as desirable, and the heat is under perfect control at all times, in all parts of the kiln.

Heat Under Each burner has a separate combustion
Perfect Control chamber so that each one works independently of the others.

There are fire-brick dampers or cut-offs, by which the heat may be held back, and as much or as little air may be admitted below, as one chooses. A heavy door on a Crane Hinge does away with the bricking up each time.

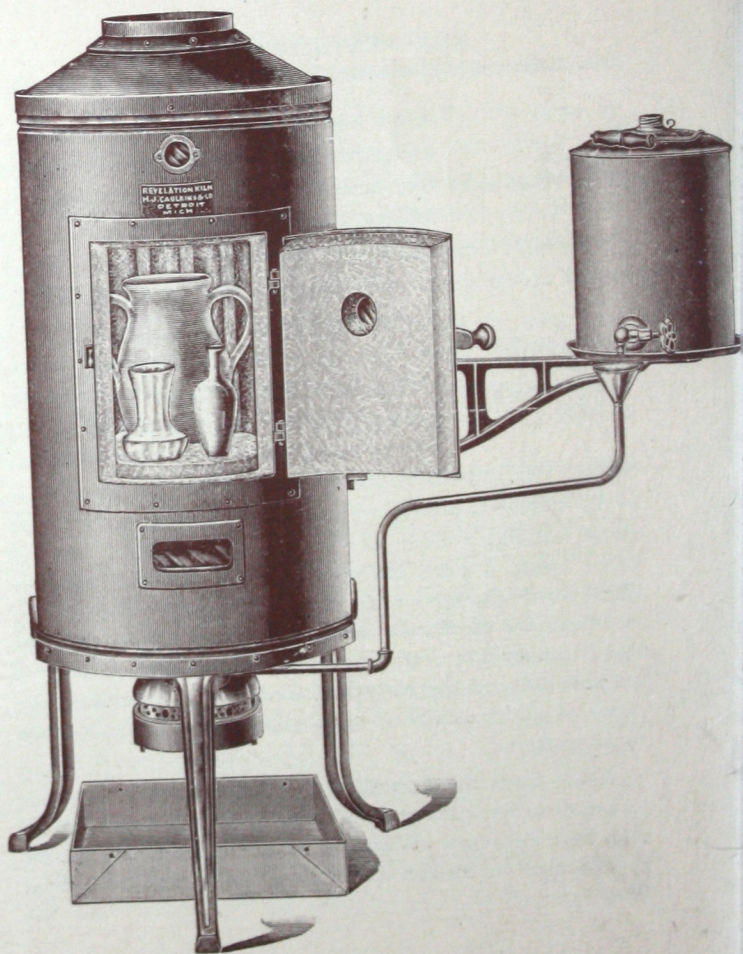
The more modern method, adopted by up-to-date potters, points toward the use of smaller furnaces, and quicker firings, doing away with or supplementing the large kilns, which take so long to place, to fire, and to cool. Small kilns will both fire and cool more quickly, often with greater advantage in results. At the same time, they may be so operated as to fire or to hold a "soaking heat" as long as any particular body may demand. The chances for possible loss, which comes at times, in firing large quantities, are greatly decreased. By our method, we are able to attain far higher heats than are necessary for any ceramic production.

These kilns opened a field for investigation, which had been closed for the lack of a portable high heat

A Portable High Heat Kiln	kiln. For the first time in the annals of ceramic industry the development of pottery and porcelain was made possible to amateurs and private workers.
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Oxidizing or Reducing Temperature at Will	No high heat equipment has ever been devised, which would create alternately reducing and oxidizing temperatures so quickly and so accurately. Up to this time, the character of superheated atmosphere has been almost entirely a matter of conjecture, and largely disappointing guess work. But, with our device, this important feature is absolutely under control at all times. If desired, the operator can produce or clear away reducing conditions almost instantaneously. On the other hand, a pure unchanging oxidizing heat may be maintained throughout, as there is always an opportunity to admit the maximum amount of air into both combustion chamber and oven proper. With kerosene oil there is no possibility of discoloration, from gases or sulphur, the latter of which is always a constant bugbear and menace to all potters.
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Aside from the cuts shown in the catalogue, we construct to order kilns and furnaces of all sizes, and for all high heat purposes. When we know the requirements, we are pleased to furnish estimate of cost for any special kiln.



Revelation School Kiln No. 2

Inside measurements—10 in. diameter, 15 in. high.
Door opening, $7\frac{1}{2}$ x 11 in.

Price, including can and connection, 1 length of lined pipe, 1 lined elbow, and pan to go beneath, $\frac{1}{2}$

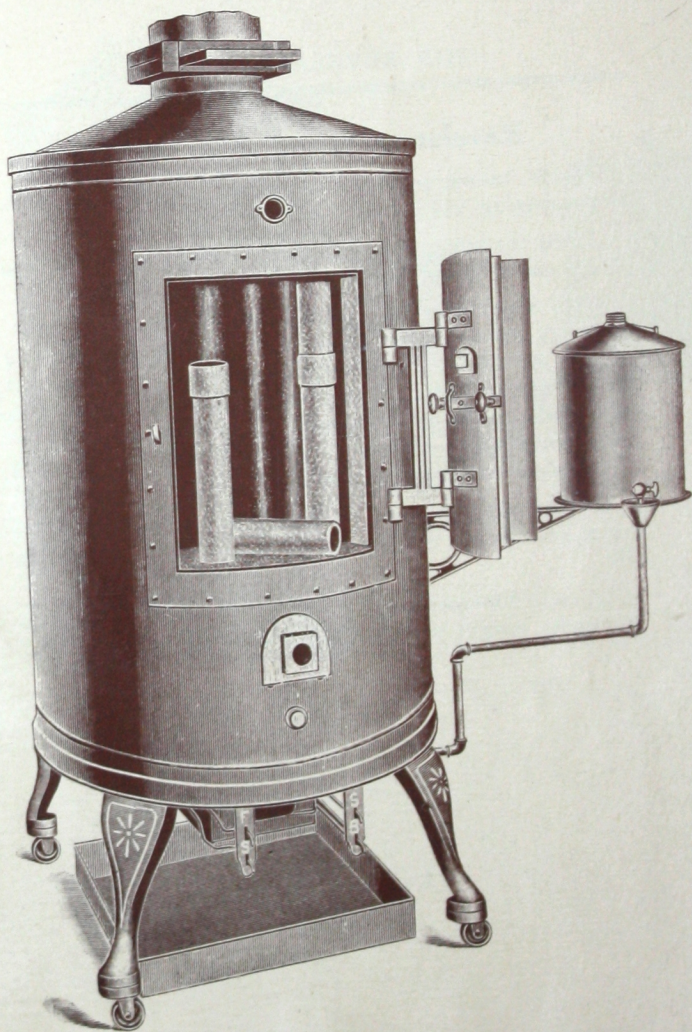
This small kiln was built especially for firing modeled clay pieces, such as are done in public schools and private studios. It will also develop lead or other soft glazes, and is useful for beginners in pottery work, who use brick clay, or other medium fire pottery materials, requiring heat up to cone 2. It is not intended for the firing of porcelain or other extreme high heats.

It may also be used equally well for china or glass firing, so that it makes a very interesting combination kiln.

Outside dimensions—19 in. diameter, $48\frac{1}{2}$ in. high. Approximate weight, crated, 345 lbs. Barrel, 85 lbs.

PRICES OF REVELATION POTTERY AND HIGH HEAT KILNS

	OIL	GAS
No. 2	85.00	95.00
Studio Pottery Kiln	195.00	215.00
No. 5 Pottery (10"x20"x18" inside)	175.00	185.00
Pottery Kiln, Page 10 and 11	396.00	462.00
Pottery Kiln, bottom of page 11	418.00	484.00
Pottery Kiln Page 12 and 13	695.00	750.00
Melting and Muffle Furnace	<u>60.00</u>	



Studio Pottery Kiln

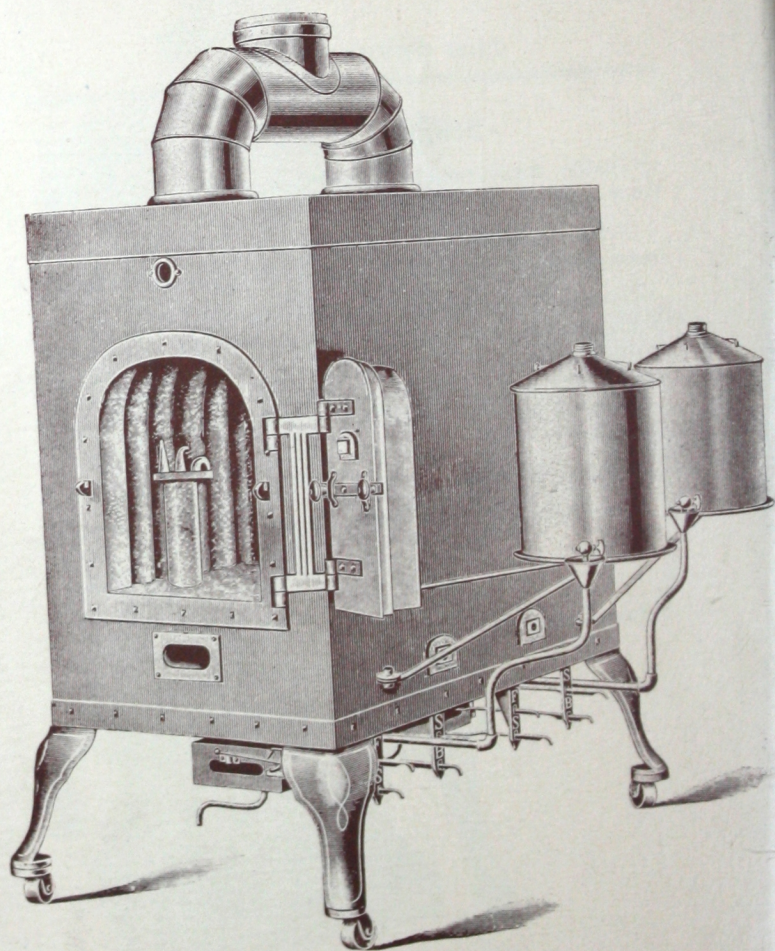
Inside measurements—15 in. diameter, 18 in. high.
Door opening, 10 in. wide, 15 in. high.

Price, including can and connections, one length of lined pipe, one lined elbow, and pan to go beneath, \$ 60.

This kiln is especially designed for studio or home use, where clay work is to be developed either as a pastime or with an educational idea in view. It enables anyone who lives where there is a bed of clay to develop the neighborhood resources, or, otherwise, the clay may be obtained elsewhere.

Outside dimensions—32 in. diameter, 55 in. high.

Approximate weight, crated, 1,000 lbs.; barrel, 100 lbs.



Pottery Kiln

Inside measurement—18 in. wide, 20 in. high, 33 in. deep.

Price, including cans and connections, fire-brick lined Tee pipe, 1 length lined pipe, \$.

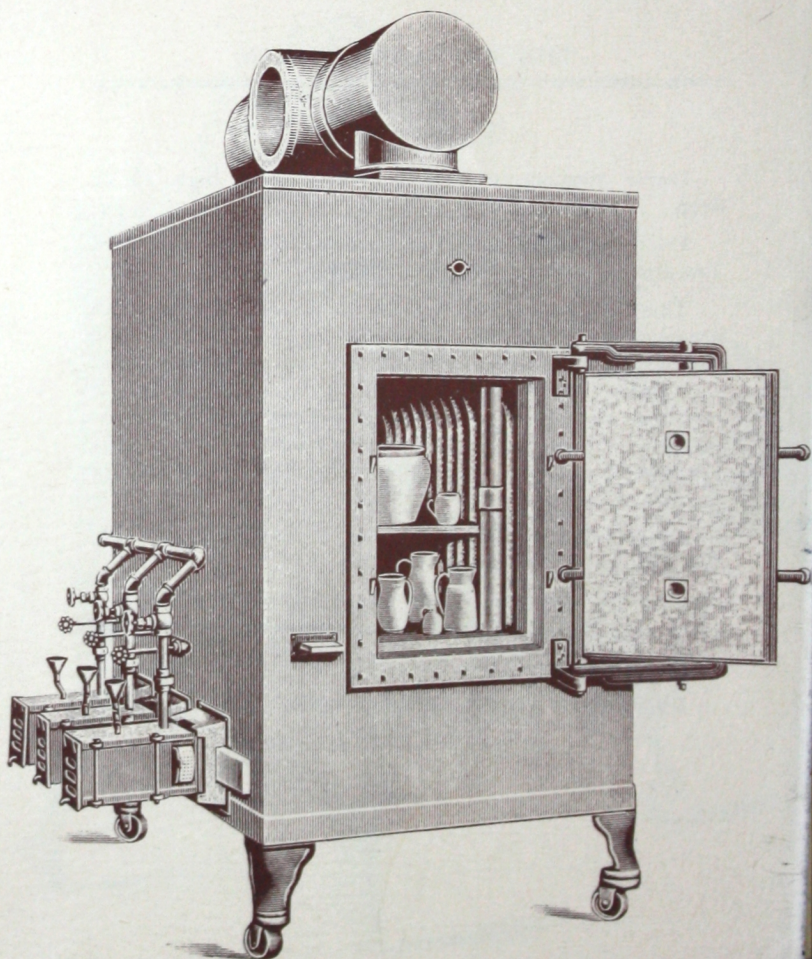
This kiln has a heavy door, on a Crane Hinge, with fire-brick plug and peep hole. It has two burners with combustion chambers, which are entirely separate, so that each burner works independently of the other. This is a practical size for the Ceramic department in a Normal School, for private potteries or small manufacturing. The pyrometric test cones, described elsewhere, are shown in the cut of this kiln.

Outside dimensions—50 in. long, 33 in. wide, 69 in. high. Weight, crated (2 crates), 3,400 lbs.

A larger size with inside measurement—20 in. wide—24 in. high and 38 in. deep, price complete as above, \$

Outside dimensions—55 in. long, 35 in. wide, 74 in. high.

Approximate weight, crated (2 crates), 3,800 lbs.



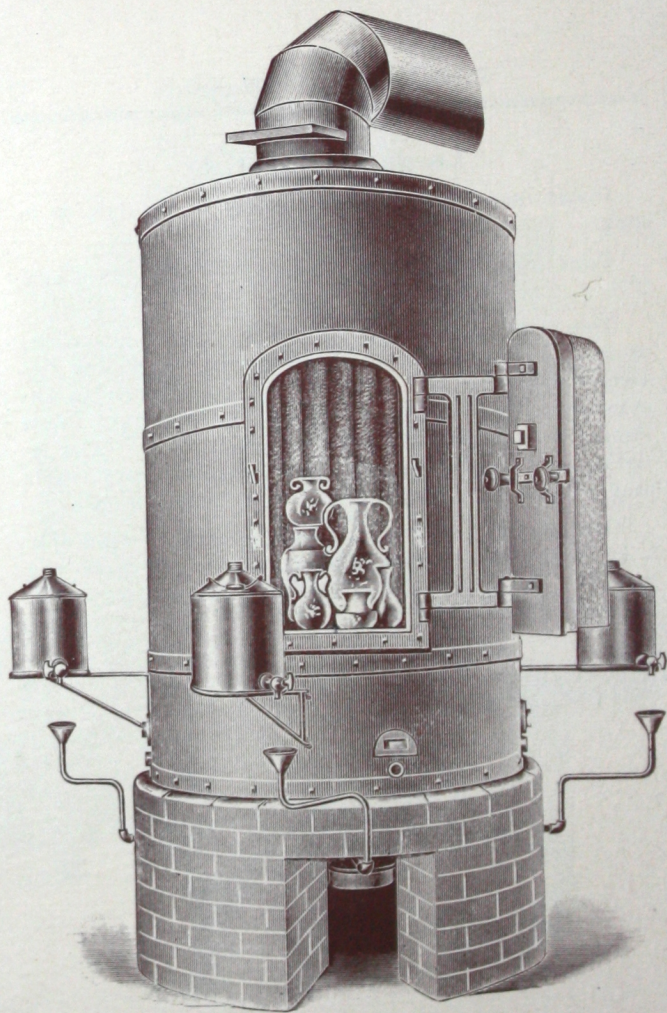
Large Pottery Kiln

Inside measurements—32 in. wide, 36 in. high, 48 in. long.

Price, including 16" Tee pipe, and 1 length lined pipe, \$77.00.

This is a kiln with a good capacity for manufacturing or work in technical schools. It has six burners and separate combustion chambers, so that each burner works independently of the other. A heavy door, on a Crane Hinge, does away with bricking up each time. The interior with pyrometric cones or other tests are within easy view through peep holes, both in front and back.

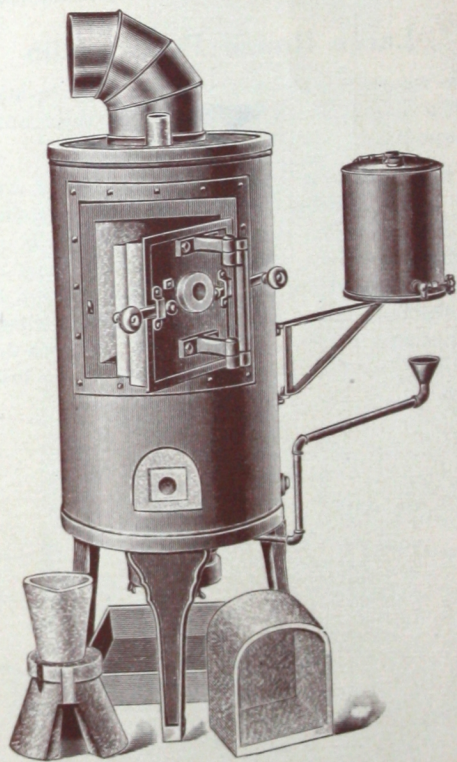
Outside dimensions—5½ ft. long, 4 ft. 5 in. wide, 7 ft. 8 in. high. This measurement includes oil cans and brackets; also Tee pipe on the kiln. Approximate weight, crated (3 crates), 9,500 lbs.



Large Round Pottery Kiln

Inside measurement—4 ft. in diameter, 5 ft. high. Door frame 20 x 32 in. Price \$100.00. This does not include brick foundation.

This kiln is of practical construction for an art pottery or other manufacturing. It develops and sustains a reliable, even heat, and the circular form keeps all parts under perfect control. The interior with tests or pyrometric cones are within easy view through peep hole. It has five burners, and a separate combustion chamber, so that each burner works independently. It has a door on a Crane Hinge, so that it does not have to be bricked up each time.



Melting and Muffle Furnace

Inside dimensions of muffle, 6 in. wide, 8 in. high, $8\frac{1}{2}$ in. deep. Opening of door frame, 8 in. x 10 in.

Price, including tank and connection, 1 length of lined pipe, one lined elbow, 1 muffle, 1 tripod, and 1 crucible,

Additional muffles, each.

Additional crucibles, 6 x 9 in., each.

Additional tripods, \$ each.

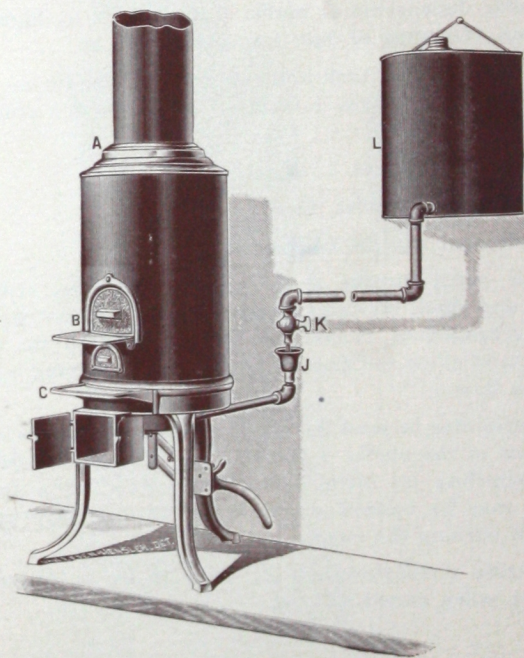
This small furnace is for general assaying, crucible work, and small meltings of pure metals. When desired, it is arranged to receive the charge through the tube above, and allow the melt to flow beneath, keeping a continuous flow.

It may also be used for testing clays either in the open flame or in the muffle. There is no more perfect device for enameling on metal. The heavy door on a Crane Hinge may be opened at any point, during the process, without burning the hands.

Outside dimensions—46 in. high, 18 in. in diameter. Weight, when crated, 200 lbs.

\$ 60.00

210



Revelation Dental Furnace

Price, including tank and connections, 1 lined pipe, one lined elbow, \$5.00. Additional muffles, \$1.00.

No blast or foot blowing apparatus required with this furnace, merely the draught in an ordinary chimney.

Inside measurements of muffle— $6\frac{1}{2}$ in. deep, $3\frac{1}{2}$ in. high, $3\frac{1}{2}$ in. wide.

We have many flattering testimonials from those who are using this furnace. We will be glad to furnish the name of persons using them.

Notwithstanding the recent development of electric furnaces, we are bound to maintain that there is no better device for continuous gum work than the Revelation oil furnace, where chimney facilities are available.

How to Make Pottery

A bed of clay can be found in almost any locality, from which to draw raw material, to be turned into objects of utility and beauty. If there is a brick yard, or commercial pottery in the neighborhood, ready prepared clay can usually be procured from them.

If you are fortunate enough to find clay in your yard, or in a field nearby, take about half a pailful and fill with water. Let it soak, until the clay softens and becomes about like thick cream. Then stir it well with a stick or large spoon, and pass through a sieve about $\frac{1}{8}$ in. mesh into another pail. Wire from an old window screen will do. This will make it smooth and remove any stones. By leaving in the pail the clay will thicken from evaporation in a week or so, or when it has some consistency it may be spread on a board in the air. Frequently turn over, and work to keep from caking. When it is quite firm, make into lumps, and knead like loaves of bread. To keep in good condition, wrap in wet cloths. You have now some beautifully prepared clay, ready for shaping.

To make a simple piece like a bowl, take a lump of clay, and pressing the thumbs in the center, work smooth, and fashion into the shape in your mind. Now and then, when the wall becomes too thin in a place, add more clay to that part, being sure to pinch it on and weld it until you are sure it has united with the lump, which is now the beginning of a bowl. When it has the general outline, which you desire, do not try to refine it too much, but set aside until the next day, when it will be drier and stiffer, or what is known as "leather-hard." It will be easier to work with now, and you can smooth it some more, or alter the shape a bit if you wish, and trim off the rim with a knife.

Another way is to make a long roll of clay as large around as one of your fingers, and coil it into a mat for the bottom, and then up the sides, afterward working and welding together. Handles may be added by making them first, and allowing them to get firm, then moistening the ends in creamy wet clay, known as "Slip." One can keep a little Slip in a cup for this purpose, made by adding water to your prepared clay.

The simplest way of decorating is by incising—marking with a line, cutting in slightly with a dull stick or pencil. Any design may be worked out this way, and your fancy will usually suggest a decoration which falls into the line of the piece, so that it seems a part of it. A raised or modeled design is more difficult, but can be mastered by adding bits of clay to fill in the pattern, afterward clearing it out, and smoothing it. Do not be too afraid to show your method of workmanship, or the marks left by your fingers or tools. This is what adds a charm to hand-built pottery, as you surely would not want your pieces finished and polished to the point that they would look like a machine made product. Rather let your own individuality express itself in every shape and design.

Many beautiful results are obtained by merely firing the clay without a glaze, especially in tile, ferneries and jars for outdoor use. Sometimes the surface may be rubbed down with floor wax or oil, to bring out the color, and add a texture.

If one desires to use glazes simple ones may be prepared, or may be purchased ready for use. A few colors which develop at a low fire give variety and interest.

For a decoration in color underglaze paints must be used, and are usually applied directly upon the clay. In this case they are fired first, and covered with a transparent glaze in a second firing.

It is with pride that we refer to some of the artist-potters as well as to professional manufacturing potteries.

PROVIDENCE, R. I.

H. J. CAULKINS & Co.,

DEAR SIRS—We have used your Revelation Kiln for nearly two years. It has done for us all that you claimed, and we are pleased to give the kiln words of high praise.

Yours very truly,

GEO. F. WESTON, Principal,
Providence Technical High School.

NEW YORK CITY.

I thought you might be interested to know of the success of the Revelation Pottery Kiln which was purchased from you by Teachers' College, N. Y.

All the work done in the clay modelling class, including pottery, architectural tiles and ornaments, figurings, etc., was fired in this kiln. With slow firing we produced excellent quality and texture in our Matt glazes, the results being not only most satisfactory to myself, but to the head of our Fine Arts Department, Prof. Dow.

At the Teachers' College exhibition last spring much enthusiasm was expressed over the results of our firing. I feel that you have produced a pottery kiln, which has placed pottery making within the possibilities of school study.

Very truly yours,

MARSHAL T. FRY.

NEWBURYPORT, MASS.

I have had in daily use for six years one of your No. 7 Revelation Kilns, which has given good satisfaction.

I have used it for special work in biscuit, glost and decoration, and it has had very hard usage and is still doing good work.

The repairs and renewals have been nominal.

Very truly,

T. S. NICKERSON.

The following is an extract from a letter written by Taxile Doat of the Sevres pottery, France, written to Mrs. Robineau, of Syracuse, N. Y.:

"I wish to compliment you in regard to your crystals. I do not know of any finer and obtained with this regularity and persistency. I certainly obtain some with the same fine needles and the same glossy finish, but not regularly. It depends on their place in the kiln. With my placing there is a bung of saggars at the back which never gets in direct contact with the flame, and from the upper third of that bung I always get my finest crystals. This confirms the theory of the Caulkins kiln and its perfect oxidizing action on account of the muffle principle. At Sevres the crystals are very uneven in results. The magnificent specimens you saw at St. Louis were selected out of 300 or 400 pieces, and were besides fired two or three times."

CHARLESTON, S. C.

It gives me pleasure to attest my satisfaction in the use of your furnace.

In all pyrometric tests up to 2,500° F. I have used your furnace with entirely satisfactory results in connection with my official work on the "Clays of South Carolina." The temperature is subject to prompt control, and with the aid of Seger Cones the action of clays, with and without glazes, at

successive temperatures can be readily determined within the limit above indicated.

For cupellation, incident to assay determinations, your "Dental" furnace is unsurpassed by any of the many which I have used.

I must urge one qualification: Anyone attempting to make use of your furnace for high temperatures without a strong draught is doomed to disappointment.

Very respectfully,

EARLE SLOAN, State Geologist.

SYRACUSE.

I am pleased to state that your kiln has given us very satisfactory results in our work on porcelain at high temperatures. It is specially well adapted for the oxidizing atmosphere, and we are obtaining very fine crystalline glazes with a regularity which would be impossible were the ware enclosed in saggars, as it is in an ordinary kiln. A firing to cone 9 lasts from 11 to 14 hours, and the amount of fuel used varies from 75 to 90 gallons. It is consequently cheaper and much more rapid than a wood firing, the only other kind of firing which could give good results in our work.

THE ROBINEAU POTTERY.

S. ROBINEAU.

ZANESVILLE, OHIO.

Your Revelation Kiln is all that you represented, and all that we expected; if we had use for a number of small kilns you would get the order for all of them.

Yours most truly,

THE J. B. OWENS POTTERY COMPANY,

Per J. B. OWENS.

2558 EDEN AVE., MT. AUBURN, CINCINNATI.

The great, especial advantage of the kiln is the avoidance of the necessity for using seggars and the accompanying annoyances connected with wad-clay for sealing them.

If only because the use of seggars and wad clay may be avoided, the Revelation kilns would prove the superiority of this method of firing. There are other advantages, however, in the greater ease with which the fire can be controlled, the possibility of firing without annoyance from the smoke of combustion, the much more conveniently managed fuel, and the greatly shortened time. Yours very truly,

M. LOUISE McLAUGHLIN.

MOYLAN, PA.

I have been using one of your Pottery Kilns for about a year and have had much more uniform results from it than I could obtain in any other kiln I have tried. The heat is so absolutely under control that results can be obtained impossible under other conditions. The greater cleanliness and absence of heavy manual labor are also important factors.

Yours faithfully,

W. P. JERVIS.

HULL-HOUSE, 335 SOUTH HALSTED STREET, CHICAGO.

We have used your Revelation Kiln for some years. We have found it thoroughly satisfactory and are glad to recommend it.

Very truly yours,

JANE ADDAMS,
President Hull-House.

FINDLAY, OHIO.

We can say with pleasure that the two Revelation Kilns bought from you have been very satisfactory, and have given the best results we have secured on our wares.

Yours truly, THE BELL POTTERY CO.

THE REVELATION KILN

GREELEY, COLO.

It is with pleasure that I give you my testimonial on your Revelation Kiln, which we use in our Art Department. We fire all our clay productions and glaze and fire the bisque also to perfection, attaining all results that could be desired and expected. We fired over 500 fine pieces at the end of one month's clay modeling.

Truly yours,

R. ERNESTI,

Director Art Department, State Normal School.

EAST LIVERPOOL, OHIO.

GENTLEMEN—It gives us pleasure to say that your Revelation Kiln, that we have had in use about a year, is giving us very satisfactory results. We use it every day and can finish the burning in about three hours, on an average.

We fill the Kiln with all kinds of dinner and toilet ware, the Kiln being large enough to admit the largest piece we make. We are pleased to recommend it as a practical Kiln.

Yours truly, THE GOODWIN POTTERY CO.,

G. S. GOODWIN, Prest.

926 2D AVE. SOUTH, MINNEAPOLIS, MINN.

The large Kiln owned by the Handicraft Guild has proved very satisfactory. It has been fired quite frequently since the first of last June, and is wearing well. From fifty to seventy-five good-sized pieces of pottery may be fired at once. The results are sure and the Kiln easy to handle. We use Red Wing clay. Once the cone melted in five hours, but usually it takes from seven to eight.

Very sincerely,

M. EMMA ROBERTS,

Secretary Handicraft Guild.

TRENTON, N. J.

We have yours of the 25th asking if the Revelation Kiln which you sent us is giving satisfaction. We beg to state that this kiln is giving entire satisfaction, and we find it very convenient in the matter of making trials and for the purpose of getting through matchings. Yours truly,

THOMAS MADDOCKS SONS CO.

EAST LIVERPOOL, OHIO.

We would state that we have one of your No. 3 Revelation Kilns, also your Miniature Kiln. Both of these have given us the best of satisfaction in every respect, and we can highly recommend the same both for even firing and economy.

Very respectfully,

THE CROXALL CHEMICAL & SUPPLY CO.,

J. T. CROXALL, President.

TRENTON, N. J.

We have been operating the large Revelation Kiln, which you built especially for us, almost constantly for about one year in firing our best grades of decoration. We are pleased to say that the kiln has given us the most satisfactory results and we are contemplating placing an order with you for another kiln of the same kind.

Yours very truly,

THE CERAMIC ART CO.,

WALTER S. LENOX, President.

SYRACUSE, N. Y.

We are much pleased with the Revelation Kiln recently shipped to us, and find it very useful for test purposes.

Very truly yours,

ONONDAGA POTTERY CO.,

JAMES PASS, Genl. Mgr.

ST. LOUIS MUSEUM OF FINE ARTS.

As to my Pottery Kiln, it gives me very great satisfaction. I usually fire to cone 2, though I can go to cone 4 readily for any special effects I may want. It is a great thing when a woman does everything about the firing herself, as there are no heavy saggars to lift. I am getting along very well with my glazing, and have developed a matt glaze that I hope soon will give us some very nice results.

Always sincerely,

HENRIETTA O. JONES.

113 UNIVERSITY PLACE, NEW YORK.

We have used the Revelation School Kiln No. 2 in experimenting with glazes requiring a low temperature. Our problem has been to bring the firing of pottery within public school conditions, and we have found this kiln the one best adapted to meet limitations of the school room. Its comparative low cost, the ease with which it may be run, the short time required for firing, the possibility of setting it up in any room having a chimney with a good draught, the fact that, with ordinary precaution, there is no danger from fire, all combine to make this Kiln practical for school purposes.

The only point of regret is that the size of the Kiln permits the firing of only a few glazed pieces at one time.

HUGO FROELICH,
PRANG EDUCATIONAL CO.

CHICAGO, ILL.

Your kiln has been in constant use in the University of Chicago for a number of years, is entirely successful and is still in perfect condition. It requires only, as do all kilns, an occasional relining. It seems to me to be especially well adapted to school use, because of the fact that it is so simple in construction.

ANTOINETTE B. HOLLISTER,
Nancy Foster Hall, The University of Chicago.

SANTA BARBARA, CAL.

We have used the Caulkins' Revelation Pottery Kiln for several years, and find it most satisfactory.

EDNAH A. RICH,

Supervisor of Manual Training, Anna S. Blake Memorial Manual Training School.

TERRE HAUTE, IND.

The Revelation Pottery Kiln you sold the Indiana State Normal School six years ago has given entire satisfaction. I know of no other make of kiln I would exchange for our Revelation Kiln. It is easy to fire and gives uniform results.

M. L. LAUBACH,

Dept. of Manual Training and Domestic Science, Indiana State Normal School.

NEW ORLEANS, LA.

The Revelation Kiln has been in use in the Isidore Newman Manual Training School during the last five years. We have secured excellent results in our department of pottery. We believe it is a first-class kiln at a minimum cost.

CLARENCE C. HENSON, Principal,

Isidore Newman Manual Training School.

MONTCLAIR, N. J.

Your Revelation Kiln No. 3291, which we have had in constant use here in the Public Schools for six years, has been most satisfactory. So far as I know there is no other portable kiln on the market which will give anything like the same results. I have reason to be more than pleased with the Revelation in every way.

CHESHIRE LOWTON BOONE,

Director Department of Art and Handwork, Public Schools, Montclair, N. J.

MARBLEHEAD, MASS.

From its beginning, Marblehead Pottery has been a product of Revelation Kilns. Our experience has led us to believe that these kilns offer the most satisfactory solution of the firing problem in small plants, manufacturing expensive ware. The comparatively high value of single pieces demands that loss from improper firing be reduced to a minimum. This is made possible by the Revelation Kiln, through the ease with which the fire may be controlled and the degree of uniformity which may be maintained throughout the muffle.

The Revelation Pottery Kiln has given us excellent results, and we take pleasure in commending it.

THE MARBLEHEAD POTTERIES.

It is necessary to use lined pipe with all pottery kilns, all the way from the kiln to the chimney.

We include in the price of the School Kiln No. 2 one length of lined pipe and one lined elbow, which is generally sufficient to connect it with the chimney, as it is as well to have it stand close to the flue.

The School kiln No. 2, the Studio Pottery kiln and the Melting and Muffle furnace require 7 in. diameter lined pipe. The \$175 and the \$250 Pottery kiln take 8¾ in. diameter lined pipe, and the \$525 size 16 in. diameter pipe. The regular length of these pipes is 24 in.

7 in. diameter lined pipe, per length.....	\$3.00
Elbow	2.50
8¾ in. diameter lined pipe, per length.....	4.00
Elbow	3.00
16 in. diameter lined pipe, per length.....	6.50
Elbow	5.00
8¾ in. lined Tee.....	7.50
16 in. lined Tee.....	21.00

We would also suggest to those who are inexperienced in high heat work that you must not attempt to connect any kind of a high heat kiln with a lightly built chimney, or with an old one, in an old building, without having it inspected in regard to its safety. Naturally, in developing a high heat, and also in long continued heat, a strong blast is sent into the flue.

With the School Kiln No. 2 a two-brick chimney, or one which is in proper condition to be used with a heating furnace ought to be sufficiently well built.

With the Pottery kilns, intended for high heats, or for firing porcelain, the chimney must be well built, and preferably, lined with fire-brick.

Following are examples of the ware coming
from our Pottery Kilns



Robineau Pottery, Syracuse, N. Y.

Some of the finest examples of glazes with crystallization have been developed in our kilns, notably the Robineau Porcelains, cut of which may be seen herewith. We take pleasure in referring especially to letters from Mrs. Robineau and Taxile Doat in this connection.



Examples of Pewabic pottery showing matt glazes in ivory and browns. This entire product has been developed from the earliest experiments to the present point of artistic and technical interest, entirely by the means of the Revelation Pottery Kilns.



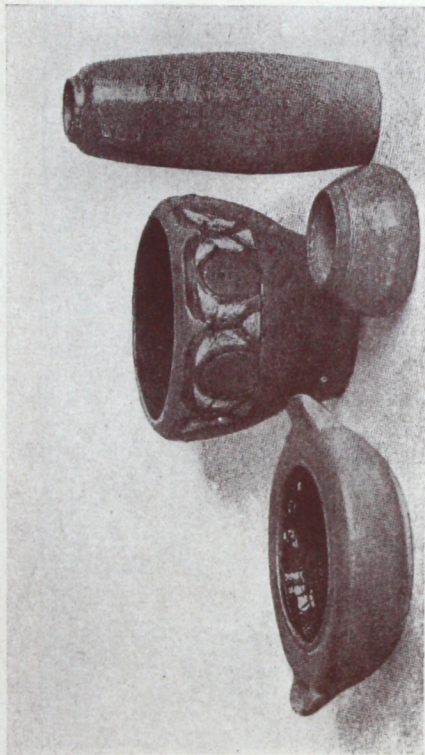
A fire-place of Pewabic Tile



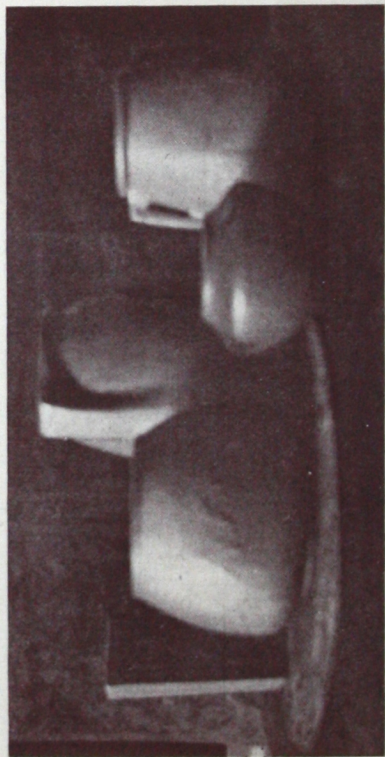
A potter at the wheel



The Marblehead Potteries,
Marblehead, Mass.



Pottery Department of the St. Louis School of Fine Arts,
Miss Henrietta Ord Jones, Director.



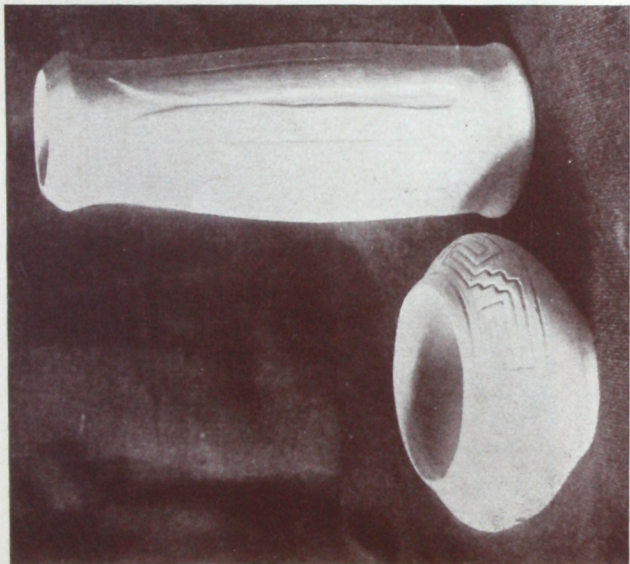
Handicraft Guild,
Minneapolis, Minn.



Laura Howe Osgood Ware, Miss Howe and Miss Marot's School
Pottery, Dayton, Ohio.



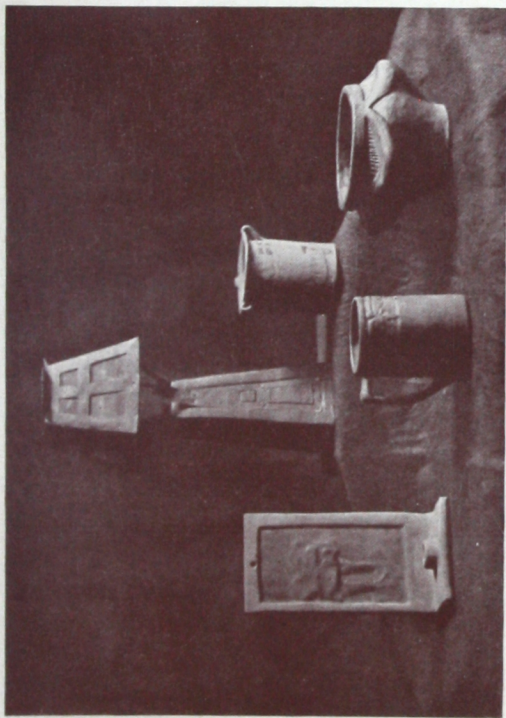
Normal School, Monclair, N. J.
Cheshire L. Boone, Director.



Hackley Manual Training School,
Muskegon, Mich.



The Laura Howe Osgood Ware, Miss Howe and Miss Marot's School
Pottery, Dayton, Ohio.



Miss Elizabeth Mills' Badger Pottery,
Madison, Wis.

In order to measure high heat temperatures, the eminent Ceramist and Scientist, Professor Seger, formulated a series of little clay tests of regularly increasing infusibility. These tests are known as Pyrometric Cones, and are manufactured for pottery use. They approximate the temperatures quite accurately, and have largely taken the place of other tests. A trial or two will determine the cones needed for any particular body or glaze. Two cones are used ordinarily. A little clay pinched about the base will keep them upright, and they are placed on a brick or other support in a Glost kiln, or on a piece of ware in a Biscuit kiln, raised so as to be in range of the peep hole. The lower cone will be affected first, and the top will be seen to tip gradually, until it bends to the base, and is a warning to watch the kiln closely, as the second cone will go down soon after. The firing is usually stopped when the cone is half over.

Tradition has handed down to potters a very exaggerated opinion of high heat temperatures, and it is no uncommon thing to hear a kiln-man state that he fires to about 3,000° or even 4,000° F., whereas no such heat is developed or used in the pottery industry.

Below is a list of the approximate degrees of heat shown by the melting point of Seger Cones, according to number.

No. of Cone	Degree C	Degree F	No. of Cone	Degree C	Degree F
010	950	1742	12	1370	2498
09	970	1778	13	1390	2534
08	990	1814	14	1410	2570
07	1010	1850	15	1430	2606
06	1030	1886	16	1450	2642
05	1050	1922	17	1470	2678
04	1070	1958	18	1490	2714
03	1090	1994	19	1510	2750
02	1110	2030	20	1530	2786
01	1130	2056	21	1550	2822
1	1150	2092	22	1570	2858
2	1170	2138	23	1590	2894
3	1190	2174	24	1610	2930
4	1210	2210	25	1630	2966
5	1230	2246	26	1650	3002
6	1250	2262	27	1670	3038
7	1270	2318	28	1690	3074
8	1290	2354	29	1710	3110
9	1310	2390	30	1730	3146
10	1330	2426	31	1750	3182
11	1350	2462	32	1770	3218
			33	1790	3254

To give some idea of the various heats required for different pottery materials, we will say that red brick clay, or flower pot clay fires from cone 010 to 06.

950°C
1742°F
1030°C
1886°F

The soft pottery or Faience clays, and modeling clay, such as is used in public school work, fires from cone 04 to 02.

1070°C 195°F
1110°C 203°F

Soft Limoge clays fire at about 010 to 08.

950°C 1742°F
990°C 1842°F

Other lead glazes from cone 04 to 02.

The body known as common white ware, or earthen ware, from cone 6 to cone 8.

China body or true porcelain is developed from cone 8 to cone 10, and this is about the maximum heat ever developed in any American Ceramic industry.

A few factories in Europe claim cone 15 as their maximum heat for the higher grade of a very limited porcelain production.

JOHN BORNMAN & SON

